

Amendments to the Drawings

The attached proposed sheets of drawings include changes to Figs. 6 through 8 and replace the original drawing sheets of Figs. 6 through 8. The optional layer number 60 has not been claimed and is not to be shown in these figures. This correction shows that layer 62 fills the collar divot.

Attachment: Proposed replacement sheet

REMARKS

Examiner K. Chen is thanked for the thorough examination and search of the subject Patent Application. Claim 1, 12, 13, and 18 have been amended.

Claim 12 at line 5 and Claim 13 at line 17 have been amended to correct a typographical error.

Figs. 6-14 have been amended to show the layer 62 filling the collar divot as claimed in the claims. The Specification has been amended to refer to this aspect of the drawing.

All Claims are believed to be in condition for Allowance, and that is so requested.

Reconsideration of the rejection under 35 U.S.C. 102 of Claims 1 and 6 as being anticipated by Heo et al is requested in view of Amended Claim 1 and in accordance with the following remarks.

Claim 1 has been amended to make it clear that the selective deposition layer is not deposited outside of the deep trench and collar divot. This is what is meant by “selective deposition” – the layer deposits on one portion of the substrate and does not deposit on another portion of the substrate. It is discussed on pages 9-10 of the Specification that in the HSG process and the other selective deposition processes disclosed, the polysilicon layer will not grow on crystalline silicon, but only on the prepared silicon surface 54.

It is not agreed that Heo teaches a selective deposition process at all. The second conductive polysilicon layer is deposited on the pad nitride layer and within the trench. It can be seen in Fig. 1B that the pad nitride layer and the trenches make up the entire surface of the substrate. There is no area of the illustrated substrate where the second conductive polysilicon layer does not deposit. Heo requires a CMP step to remove the second conductive polysilicon layer on the pad nitride layer and to partially remove the second conductive polysilicon layer in the trench. In Applicants' process, no CMP and no partial removing is required because the second conductive polysilicon layer does not deposit on the nitride layer nor on the crystalline silicon layer nor on any area other than "into said deep trench" as claimed in amended Claim 1. This can be seen in Fig. 6. The buried strap formation is completed by the selective deposition of the layer 62. No further processing such as the CMP of Heo et al is required to complete the buried strap.

Reconsideration of the rejection under 35 U.S.C. 102 of Claims 1 and 6 as being anticipated by Heo et al is requested in view of Amended Claim 1 and in accordance with the remarks above.

Reconsideration of the rejection under 35 U.S.C. 103 of Claims 2-5 and 7-25 as being unpatentable over Heo et al is requested in view of Amended Claims 1, 13, and 18 and in accordance with the following remarks.

As discussed above, Heo et al does not disclose selective deposition of polysilicon. It is discussed on page 11 of the Specification that Applicants' process of selective polysilicon deposition deposits the buried strap to a controlled thickness that cannot be achieved by Heo's method of non-selective deposition and CMP. Claims 1, 13, and 18 have been amended to make it clear that the selective deposition layer is not deposited outside of the deep trench. The buried strap formation is completed by the selective deposition, requiring no further processing. Heo does not teach or suggest the key selective deposition to form the buried strap of Applicants' invention.

Reconsideration of the rejection under 35 U.S.C. 103 of Claims 2-5 and 7-25 as being unpatentable over Heo et al is requested in view of Amended Claims 1, 13, and 18 and in accordance with the remarks above.

Allowance of all Claims is requested.

It is requested that should Examiner Chen not find that the Claims are now Allowable that the Examiner call the undersigned at 765 4530866 to overcome any problems preventing allowance.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'SBA', written over a horizontal line.

Stephen B. Ackerman, Reg. No. 37,761

Attachment: Replacement drawing sheets Figs. 6-8